

**Notice of Allowability**

Application No.

09/993,735

Examiner

Sath V. Perungavoor

Applicant(s)

SEFCIK, JASON

Art Unit

2624

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE filed on March 8, 2007.
2. ☒ The allowed claim(s) is/are 1-5, 9-13, 15-20, 24-28, 30-35, 39-43 and 45.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 20070516.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

### EXAMINER'S AMENDMENT

[1] An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

[2] Authorization for this examiner's amendment was given in a telephone interview with Mr. Shawn B. Cage (Reg. No. 51,522) on May 16, 2007.

[3] The application has been amended as follows:

#### In claim 1

Please replace all subject matter of claim 1 with the following:

1. A method for estimating a position of moving objects in a set of image data, wherein the objects are occluded in at least a portion of the image data, the method comprising the steps of:  
  
    identifying a position of an object in a first frame of image data acquired at a first time based on first positional values of the object and first stabilization values of the object, the stabilization values being associated with movement in background of the image data;  
  
    determining that the object is undetected in a second frame of image data acquired at a second time;  
  
    associating second positional values of the object and second stabilization values of the object with the second frame of image data;

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estimating movement of the object to determine its estimated position in the second frame of image data by compensating for image destabilization and by using at least one of velocity and acceleration of the object and time between frames of image data, wherein the estimating step includes calculating positional difference values of the object using the first and second positional values, calculating stabilization difference values of the object using the first and second stabilization values, subtracting stabilization difference values from positional difference values for each frame of image data to generate stabilized positional difference values;

using the estimated position to determine a position of the object in a third frame of image data acquired at a third time; and

calculating an actual movement of the object by adding the stabilization difference values to the estimated movement.

**In claims 6, 7 and 14**

Please cancel claims 6, 7 and 14

**In claim 15**

Please make claim 15 dependent on claim 1

**In claim 16**

Please replace all subject matter of claim 16 with the following:

16. A system for estimating a position of moving objects in a set of image data, wherein the objects are occluded in at least a portion of the image data, the system comprising:

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a memory that stores steps of a computer program to:

identify a position of an object in a first frame of image data acquired at a first time based on positional values and stabilization values, the stabilization values being associated with movement in a background of the image data,

determine that the object is undetected in a second frame of image data acquired at a second time,

associating second positional values and second stabilization values with the second frame of image data;

estimate movement of the object to determine its estimated position in the second frame of image data by compensating for image destabilization and by using at least one of velocity and acceleration of the object and time between frames of image data, wherein to estimate movement the computer program calculates positional difference values using the first and second positional values, calculates stabilization difference values using the first and second stabilization values, and subtracts stabilization difference values from positional difference values for each frame of image data to generate stabilized positional difference values;

use the estimated position to determine a position of the object in a third frame of image data acquired at a third time,

calculate an actual movement of the object by adding the stabilization difference values to the estimated movement of the object; and

a processor for accessing the memory to execute the steps.

**In claims 21, 22 and 29**

Please cancel claims 21, 22 and 29

**In claim 30**

Please make claim 30 dependent on claim 16

**In claim 31**

Please replace all subject matter of claim 31 with the following:

31. (Currently Amended) A computer-readable storage medium containing a computer program that performs the steps of:

identifying a position of an object in a first frame of image data acquired at a first time based on first positional values of the object and first stabilization values of the object, the stabilization values being associated with movement of a background of the image data;

determining that the object is undetected in a second frame of image data acquired at a second time;

associating second positional values of the object and second stabilization values of the object with the second frame of image data

estimating movement of the object to determine its estimated position in the second frame of image data by compensating for image destabilization and by using at least one of velocity and acceleration of the object and time between frames of image data, wherein the estimating step includes calculating positional difference values using first and second positional values, calculating stabilization difference values the object the object using first and second stabilization values, and subtracting stabilization difference values from positional difference values for each frame of image data to generate stabilized positional difference values;

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using the estimated position to determine a position of the object in a third frame of image data acquired at a third time; and

calculating an actual movement of the object by adding the stabilization difference values to the estimated movement of the object.

**In claims 32, 33, 34, 35, 39, 40, 41, 42 and 43**

Please replace “computer-readable medium” with “computer-readable storage medium”

**In claims 36, 37 and 44**

Please cancel claims 36, 37 and 44

**In claim 45**

1. Please replace “computer-readable medium” with “computer-readable storage medium”
2. Please make claim 45 dependent on claim 31

**REASONS FOR ALLOWANCE**

[4] The following is an examiner’s statement of reasons for allowance: The instant invention pertains to object tracking.

[5] Prior art was found for and applied in the previous office actions. Applicant uniquely claimed a distinct feature in the instant invention, which are not found in the prior art, either singularly or in combination.

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[6] The feature is (emphasis added), “calculating an actual movement of the object by **adding the stabilization difference values to the estimated movement of the object.**” This feature is not found or suggested in the prior art.

[7] Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

[8] Claims 1-5, 9-13, 15, 16-20, 24-28, 30, 31-35, 39-43 and 45 are allowed.

### ***Contact Information***

[9] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Sath V. Perungavoor whose telephone number is (571) 272-7455. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Matthew C. Bella whose telephone number is (571) 272-7778, can be reached on Monday to Friday from 9:00am to 5:00pm. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

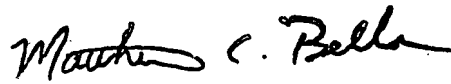
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system,

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see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dated: May 16, 2007

Matthew C. Bella  
Sath V. Perungavoor  
Telephone: (571) 272-7455

A handwritten signature in black ink, appearing to read "Matthew C. Bella". The signature is fluid and cursive, with the first name "Matthew" being more prominent than the last name "Bella".

MATTHEW C. BELLA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600